



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,413	04/27/2001	Dragan Obradovic	1454.1056/RAG	7804
21171	7590	10/06/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			ARMSTRONG, ANGELA A	
			ART UNIT	PAPER NUMBER
			2654	

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/830,413

Applicant(s)

OBRADOVIC

Examiner

Angela A. Armstrong

Art Unit

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 32 is objected to because of the following informalities: as written, the claim depends from cancelled claim 9. For furthering prosecution, the Examiner assumes applicant intended for the claim to depend from independent claim 29, and will examine the claim as such. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 21-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are drawn to solving a mathematical problem without limitation to a practical application, as the claims do not provide a specific signal input or a practical/useful specific output.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2654

3. Claims 21-25, 27-33, and 35-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al, "Combining time-delayed decorrelation and ICA: towards solving the cocktail party problem," Proceedings of the 1998 IEEE International Conference on Acoustics, Speech and Signal Processing, Seattle, WA, vol. 2, pages 1249-1252.

4. Regarding claim 21, Lee discloses a method for determining parameters of a technical system to determine output signals from a set of superimposed, statistically mutually independent input signals, in which the parameters, which are elements in an unmixing matrix, by which the set of superimposed input signals are multiplied, and by which the output signals are formed, are determined by optimization of a statistical independence of the output signals (page 1249, Abstract; section 2, entitled Problem Statement and Assumptions), said method comprising: repeatedly performing a time-delayed decorrelation calculation to determine intrinsic values in the unmixing matrix until cross-correlations are substantially minimized (page 1251, section 5 entitled Time-Delayed Decorrelation as a Preprocessing Step); and carrying out cumulant minimization, with the intrinsic values determined by a final time-delayed decorrelation calculation being used as start values for the cumulant minimization (page 1251, section 5 entitled Time-Delayed Decorrelation as a Preprocessing Step).

Regarding claim 22, Lee discloses parameters are determined using an iterative method (page 1251, section 5 entitled Time-Delayed Decorrelation as a Preprocessing Step --"iteratively updating for the filter").

Regarding claim 23, Lee discloses the cumulant minimization is carried out by training a neural network (page 1250, section 4 entitled Learning).

Art Unit: 2654

Regarding claim 24, Lee discloses at least one diagonal parameter in the unmixing matrix is set to a predetermined value ((page 1251, section 5 entitled Time-Delayed Decorrelation as a Preprocessing Step – “setting the filters to identity”)

Regarding claims 27 and 28, Lee discloses the signals are statistically mutually independent (page 1249, section 2 entitled Problem Statement and Assumptions).

Regarding claims 29-32 and 35-40: claims 29-32 and 35-40 are similar in scope and content to claims 21-24 and 27-28, and are therefore rejected under similar rationale.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Bell (US Patent No. 5,706,402)

Balan (US Patent No. 6,343,268)

Genereux (US Patent No. 5,272,656)

Torkkola (US Patent No. 5,675,659)

Lindgren (US Patent No. 6,577,675)

Art Unit: 2654

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 571-272-7598. The examiner can normally be reached on Monday-Thursday 11:30-8:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Angela A Armstrong  
Examiner  
Art Unit 2654

AAA  
October 2, 2005

*Angela A. Armstrong*